

CHARGE NUMBER: Project 1904
PROJECT TITLE: Bioengineering Studies
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PROJECT LEADER: I.L. Uydess
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Data on the rate and extent of biomass production, sugar and nitrate utilization, and on the accumulation of extracellular (soluble) proteins¹ and pectins are being analyzed and correlated with other analytical data derived from tobacco suspension cultures grown at 27°C (+/-1°C) in either total darkness or total light, and in total darkness at 34°C. While growth rates and production of biomass under each culture condition were generally similar, the degree and rate of utilization of Nitrate² and production of extracellular pectins were not. Tobacco suspension cultures acclimated to growth at 27°C in light (approximately 25 $\mu\text{mol}/\text{m}^2/\text{sec}$) 24 hours/day utilized nitrate to the greatest degree and produced more extracellular pectins (per gram of cellular biomass) than either of the other two cultures. A special report on these data, as well as on analytical data from extracellular pectin analysis, and analytical investigations of the cellular biomass produced under each environmental situation, are currently being prepared.

Silvia Tenhet and Debbie Chadick participated in a two-week lecture/workshop on plant cell and tissue culture at the University of Kentucky at Knoxville, headed by Dr. Don Dougall. A trip report was issued, summarizing the topics covered.

Dr. Peter Brodelius, an innovator in the field of Plant Cell Immobilization and Permeabilization (to recover intracellular products) from the Swiss Federal Institute for Biotechnology (ETH-Honggerberg) visited PM, R&D on August 19 and 20th. He presented a seminar on his recent work and visited several R&D labs.



¹Coomassie Brilliant Blue - reactive soluble proteins.

²In relation or response to the availability and utilization of ammonia.

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